

A vintage-style illustration in a sepia tone. In the foreground, a man with a mustache, wearing a white shirt and a patterned tie, is focused on working with a small tool on a decorative wooden frame. Behind him, a young boy with curly hair, wearing a striped shirt, looks on with a wide, enthusiastic smile. To the left, a small inset shows a sailboat. In the background, a steam locomotive is visible on a track. The overall theme is home craftsmanship and hobbies.

THINGS TO MAKE AND HOW TO MAKE THEM...

Out of
Wood, Metal,
Glass and
Plastic

Project
Instruction
Book

CASCO ELECTRIC HAND POWER TOOL KIT

A Portable Workshop For Hobbyists,
Mechanics and Home Craftsmen

KNOW YOUR CASCO POWER TOOL

and enjoy complete satisfaction and pleasure!



This book is not intended to be a complete manual of instruction on all the various uses to which your kit can be put.

Nevertheless, a careful reading of this booklet will repay the user of the CASO Hand Power Tool Kit. The instructions for using the tool and accessories to make things from various common materials will provide the beginner with valuable pointers as well as with ideas of what to make and how to make them.

By following the suggestions in this booklet, the novice will find that he can soon turn out creditable and useful objects in various kinds of material and, as he progresses in skill and confidence, will discover all sorts of new uses for the tool and turn out work which would, in the beginning, have seemed utterly beyond his powers.

With a Casco Tool and the proper accessories, you can grind, rout, drill, carve, cut, saw, sand, polish and engrave. Until you are thoroughly familiar with these accessories and the effects they create, you should consult this book frequently to make sure that the accessory you select is designed for the job you want it to do.

There is a place for each accessory in your kit. You will find that it is a good idea to take these accessories as you need them and replace them when you are finished. One of the first rules of a good craftsman is "a place for everything and everything in its place." Get in the habit of keeping your kit orderly and clean and you will find that your accessories will not be so apt to disappear.

Your CASO Power Tool will serve you best if you give it the best care.

GOOD HINTS on the Care and Use of Your Casco Power Tool

1. The Casco Power Tool is designed for light, fine work. Do not overload the tool by forcing. It is the high speed of the motor that does the work. Do not make heavy cuts or bear down with the tool. Let the accessory do its work by applying a series of light, steady cuts.
2. All motor driven devices normally generate heat. The triple cooling mechanism prevents uncomfortable overheating in normal usage. If the tool does become excessively hot, it is being overloaded because of undue pressure being applied. In such cases, switch off the tool and allow it to cool. Then resume with LIGHT cuts without forcing.
3. When removing plug from outlet, do not yank the cord—grip plug to remove.
4. The CASCO Power Tool is a constant speed motor operating on 110-120 volts, 25 to 60 cycles A.C. or D.C. at a speed of 20,000 R.P.M. Do not operate on higher voltages. The speed can be varied by the use of a rheostat.
5. **Oiling:** With normal use, oil once a year. If tool is used continuously, oil after 100 hours. Do not over-oil. To oil, remove screw nearest switch button. Put one drop only of light machine oil into screw hole.

SERVICE AND GUARANTEE

Factory Tested: This tool comes to you ready to operate. Each tool is put through a series of thorough laboratory tests. Performance of every type of operation is carefully checked and passed through strict inspection before it leaves the factory. Tool is durably constructed. No special attention is required other than ordinary care and consideration.

Do not attempt to repair this tool yourself. If motor fails to run properly, or if tool has been damaged, return the **Power Tool only**, not the complete kit, to the factory. Pack carefully, print your name and address clearly, ship postage prepaid and mark Attention, Service Department. Tool will be repaired as necessary. Any repairs not included in the guarantee will be at charges based upon the extent of repairs required.

GUARANTEE

CASCO Power Tools are guaranteed for 90 days against defective material and workmanship, and any part that proves to be defective within this warranty will be replaced free of charge. We assume no responsibility for damage resulting from abuse, accident, or from use on improper current. Replacement of brushes is not included in this guarantee. This guarantee applies to the Power Tool only.

HOW TO OPERATE YOUR CASCO POWER TOOL

a. First plug the cord into an outlet. *Switch the tool on to make certain you have a good circuit.

b. Holding tool in hand with cord toward you, pull back telescoping sleeve and lock chuck by turning left. This locks the shaft so tool cannot operate if switched on accidentally while inserting accessory. A DEFINITE SAFETY FEATURE!

c. Remove chuck cap by unscrewing to right in order to insert collet.

d. Insert proper collet (1/8" or 3/32") to hold accessory desired. Accessories in kit have both 1/8 and 3/32 inch shanks.

e. Replace chuck cap by screwing to left. Do not screw down all the way for this tightens the collet and you will not be able to insert the accessory.

f. Insert accessory into collet approximately 1/2 length of shank and lock firmly by turning chuck cap left with wrench. Do not force—just make certain accessory is tight in collet.

g. To put tool in operating position, release telescoping SAFETY sleeve by pulling back and turning to right. Tool is now ready for use.

***Caution:** Do not turn switch on while sleeve is in locked position—pulled back. Do not pull back on telescoping safety sleeve while switch is on. When sleeve is locked back, collet and accessory cannot revolve.



Casco Power Tools can be held in many convenient positions. Below are two of the more comfortable positions advocated in using the power tool to the best advantage.



a. **Pencil Fashion:** In this position the tool can be employed for fine detail work, such as engraving, grinding and etching. Notice how convenient it is to hold in this position because of its fine balance, lightness and shape.



b. **Palm Position:** The custom shape of the CASCO tool is so designed to fit comfortably in the palm of the hand as illustrated. In this position, the tool can easily be used for routing, carving, sanding, grinding, polishing, etc.

NOW, YOU SHOULD KNOW HOW TO OPERATE THE CASCO POWER TOOL

Note: It is advisable to practice the above instructions several times in order to develop ease and confidence in handling the tool.

CASCO PRECISION TYPE ACCESSORIES

The wide array of precision engineered CASCO accessories makes your CASCO Power Tool do thousands of different time and money saving jobs . . . eliminates hand work and reaches the hard to get at places.

By simply making a quick change of the accessory, you can make your CASCO Power Tool do a completely different job. Be sure to have on hand all of the accessories described.

CASCO accessories are American made to the same precision limits as on larger industrial accessories, to give long life and outstanding performance.

For best results be sure to use genuine CASCO made accessories in your Hand Power Tool.

If your dealer cannot supply, write direct to CASCO Products Corporation and give dealer's name and address.

Convenient order form and price schedule enclosed with this book.

CASCO SPEED DRILLS

Speedily drills shallow holes in wood, soft metals, plastics. Not usable for hard or abrasive materials.

All with 3/32" dia. shanks.

No. GJ 7758, 1/16" dia. No. GJ 7759, 1/32" dia.

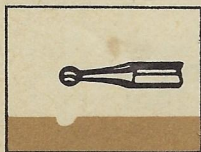
No. GJ 7760, 3/64" dia.



CASCO STEEL CUTTERS

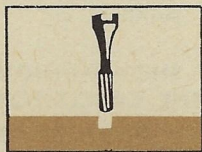
For carving, routing, roughing, finishing, engraving, grooving, milling, countersinking, beveling. Works on wood, fibre, plastics, soft metals. These cutters not intended for use on hardened steel or other metals of high tensile strength.

All with 1/8" dia. Shanks



Ball Cutter, No.
GJ 7761, 1/8" dia.

For grooving, line engraving, radio work.



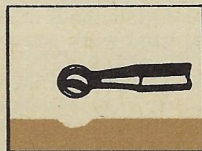
Circular Cutter,
No. GJ 7762,
Length 3/16" x
1/16" dia.

For end milling, detail work, shaping, beveling.



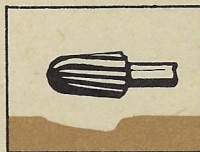
Flame Cutter, No.
GJ 7795, 7/32" dia.

For rounding, beveling, oval cuts, carving, gouging.



Ball Cutter, No.
GJ 7799, 1/4" dia.

For gouging, cross hatching, radius carving, rounded effects.



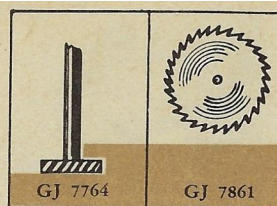
Oblong Cutter, No.
GJ 7763, 3/8" x
7/32" dia.

For roughing, ripping, rapid removal of materials, ample chip clearance in carving.



Cone Cutter, No.
GJ 7800, 1/8" dia.

For countersinking, taper cutting, angular grooving, engraving. Use to simulate chip carving.



CASCO SAWS for slitting, undercutting, grooving, purfling and sawing wood, plastics, fiber and soft metals.

No. GJ 7764, 3/8" dia. x 1/32" thick mounted steel saw. 1/8" dia. shank.

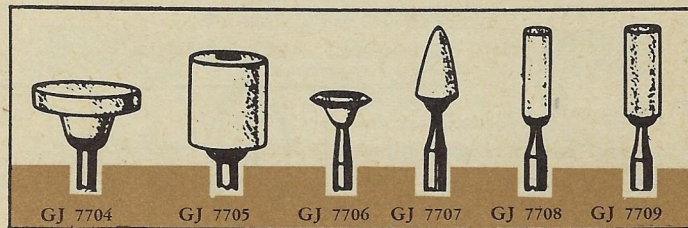
No. GJ 7861 Blade only, 3/4" dia. Fits No. GSA 8018 mandrel.

CASCO CERIMAX MOUNTED ABRASIVE WHEELS

For grinding, engraving, etching, marking, burring, nicking, breaking sharp corners, precision finishing and polishing on metal, glass and other hard materials.

CASCO Cerimax Mounted Abrasive Wheels are made of the finest, selected abrasives, with proper grit and grain to grind practically any type of material. Wheels are securely bonded on steel mandrels . . . 1/8" shanks.

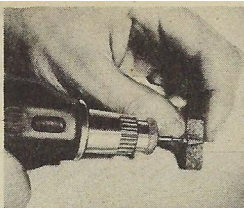
The assortment of wheel shapes provide a Cerimax Abrasive Wheel for a multitude of uses.



- No. GJ 7704, (5/8" dia. x 1/8" thick) \$.75 ea.
- No. GJ 7705, (1/2" dia. x 1/2" thick) \$.75 ea.
- No. GJ 7706, (7/16" dia. knife edge) \$.65 ea.
- No. GJ 7707, (1/4" dia. x 1/2" long) \$.60 ea.
- No. GJ 7708, (3/16" dia. x 1/2" long) \$.55 ea.
- No. GJ 7709, (1/4" dia. x 1/2" long) \$.55 ea.

DRESSING STONE

No. GJ 7755 for shaping, removing glaze and wheel load from Mounted Abrasive Wheels: 3/8" sq. x 1" long.



For best results your CASCO Cerimax Mounted Abrasive Wheels should run perfectly true. To shape, true or remove wheel load use your CASCO Wheel Dressing Stone frequently.

Note: Always use mounted abrasive wheels with care. Apply to work carefully until it just touches. Never jam the wheel against the work. Always chuck the wheel with as little of the mandrel extending from the chuck as possible. The less protruding — the better results.

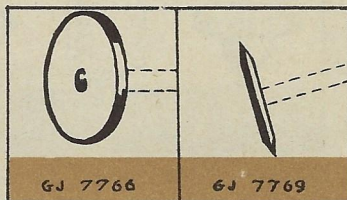
When using such wheels, it is recommended the operator wear safety goggles or perform work with a plastic or glass shield to prevent injury from flying abrasive particles.

Always be safety minded in your work.

WHEELS FOR POLISHING, BUFFING, CLEANING AND FINISHING

The perfect accessories for getting smooth high-polished surfaces on metal, plastic and other hard surfaces.

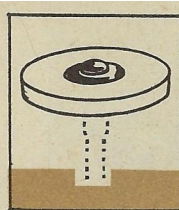
Use on Mandrel No. GSA 8018.



RUBBER BONDED POLISHING WHEEL

No. GJ 7766, 7/8" dia. x 1/8" thick.

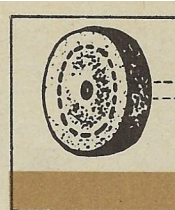
No. GJ 7769, 5/8" dia. knife edge.



FELT BUFFER

No. GJ 7768, 3/4" dia. x 1/8" thick.

Fits mandrel No. GSA 8018.



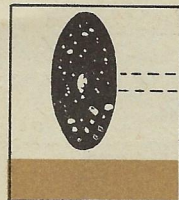
CLOTH BUFFING WHEEL

No. GJ 7770, 1" dia. x 16 ply.

Radially stitched, cemented center, 16 ply cloth.

Fits mandrel No. GSA 8018.

ABRASIVE CUTTING DISC



for slitting, cutting, smoothing, grinding, slicing and cut off work.

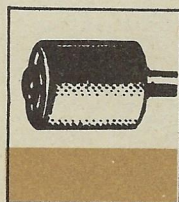
Made from Silicon Carbide, with vulcanized rubber bond.

No. GJ 7767, 1" dia. x 1/32" thick

Fits mandrel No. GSA 8018.

SANDING ACCESSORIES

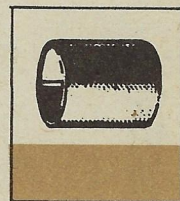
For finishing, smoothing, sanding metal, wood or plastic surfaces.



Mounted SANDING DRUM and BAND ASSEMBLY

No. GJ 7801. Complete rubber drum mounted on special 3/32" mandrel with medium grit No. GJ 7802 emery sanding band.

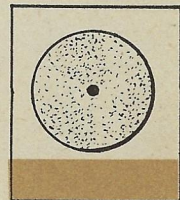
No. GJ 7802. Cloth-backed, medium grit emery sanding band only—1/2" long by 7/16" dia.



SANDING DISCS

No. GJ 7863. Package of 100 assorted garnet sanding discs — coarse, medium and fine grits.

Fits on mandrel No. GSA 8018.



MOUNTED BRUSHES

For cleaning, removing rust, producing brushed finishes on all type surfaces and hard-to-get-at places.

All with 3/32" shanks.



Flat Wheel

No. GJ 7771, bristle, $3/4''$ dia. x $3/32''$ thick.



Cup Brush

No. GJ 7772, bristle,
1/2" dia. x 3/16"
long.



Scratch Brush

No. GJ 7774, wire brush, 1" dia. x 3/16" thick.



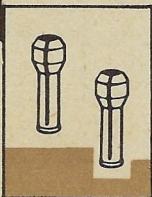
Porte Brush

No. GJ 7773, bristle, 3/16"
dia. x 1/4" long.

GENERAL ACCESSORIES

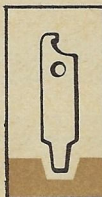


Mandrel No. GSA 8018 two piece screw-in-end type. Precision made, rust proof finish, 1/8" shank accommodates following accessories: No. GJ 7861, No. GJ 7766, No. GJ 7767, No. GJ 7768, No. GJ 7769, No. GJ 7770, and No. GJ 7863.



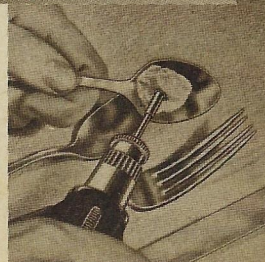
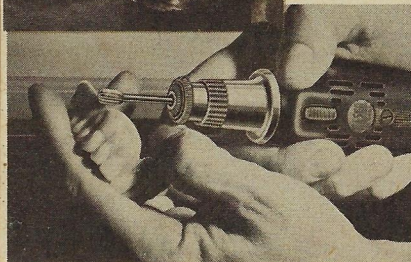
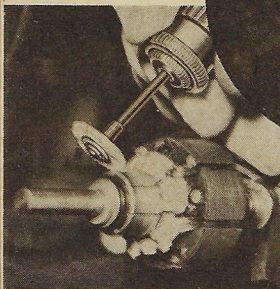
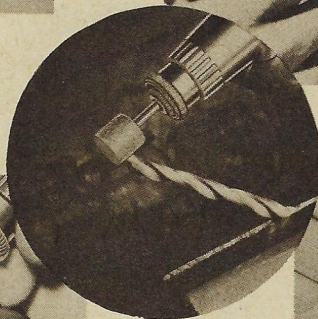
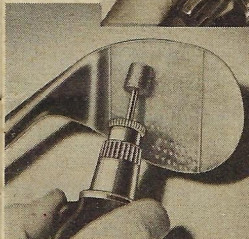
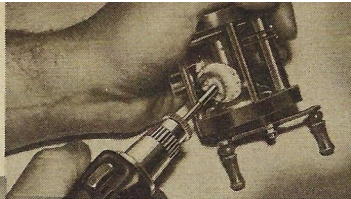
Spring type Collet No. GD
7647 for accessories with 1/8"
shanks.

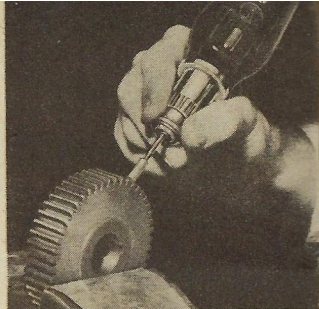
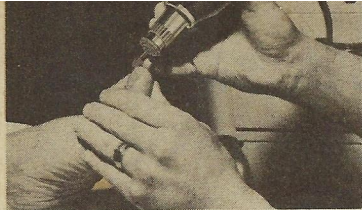
Spring type Collet No. GD 7655 for accessories with 3/32" shanks.



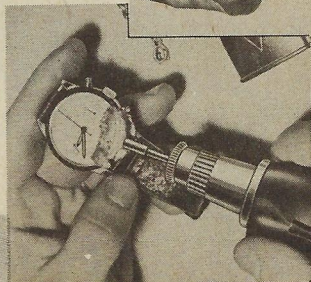
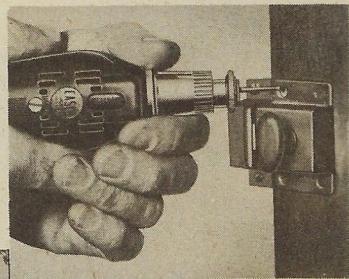
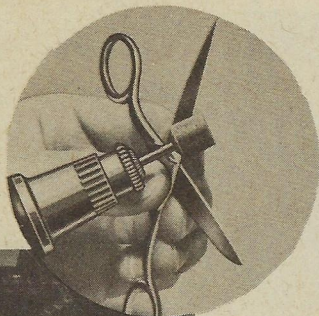
Combination Screw Driver and Wrench No. GJ 1242. For locking chuck cap after inserting accessory.

**PRACTICAL
USES
FOR CASCO
POWER TOOL**





PLASTICS



Among the easiest materials to work with a power tool are the cellulose acetate plastics which you are probably familiar with under such trade names as Lumarith and Tenite. These are widely used in lampshades, automobile parts, decorative handles and thousands of everyday articles.

Samples of these plastics can be easily obtained by utilizing old or discarded articles which are made of plastic or which contain plastic parts, by writing to the manufacturer for samples, and by consulting the advertising pages of any hobby or handicraft magazine for the names of suppliers of specially prepared stock for the home craftsman. Your local hobby shop can probably supply you.

HOW TO CARVE PLASTICS

The cellulose acetates are the softest of all plastics and easiest to carve and polish. Only the fluted steel burrs in your set should be used, and these with only a **LIGHT** pressure or they will become clogged and will heat up. Remember it is the tremendous **SPEED** of the CASCO electric power tool that does the carving—**NOT PRESSURE**. A small burr with only 8 flutes, turning at 20,000 revolutions per minute, is making 160,000 cuts per minute, so it is only necessary to remove an infinitesimal amount of material with each cut. So don't ever **FORCE** the tool into the work—let the **SPEED** do it, especially on such soft material as plastics.

When sawing off a thick piece, thicker than the steel saw-blade furnished, use a hack-saw, and when cutting off a sheet of thin material, score first with a knife-blade and break it off. When drilling plastics, back out the tool every few seconds in order to clear the chips—otherwise they will gum up the tool-point. The cellulose acetate plastics are a *thermo-plastic* material, i.e., they can be softened with heat. If the tool is forced, its high speed will heat and soften the material, and while you can carve with heat alone, much faster, better and cleaner results are obtained if you use less pressure and cut clean. Gummed tools may be cleaned by scraping off the material, or by soaking them in acetone. The carving-dust is not injurious to health or other materials, and may be saved and dissolved in acetone to make an excellent cement for plastics or other materials. Never use grinding-wheels or hard polishing-wheels on plastics.

HOW TO POLISH PLASTICS

The first step in polishing any plastic is to remove all tool marks thoroughly. Therefore be careful in the final stages of carving by making only light cuts. Then finish up by using the GJ7801 Sanding Drum or the GJ7863 Sanding Discs. The smoother the surface—the easier it will be to produce a high-finish lustre.

The actual polishing may be done either with a solvent, or with the GJ7770 cotton buffing-wheel. To polish with a solvent, merely smooth the surface down to a smooth "frosted" appearance, and dip the article a few seconds in plain acetone, which you can get at any drug store. This dissolves the roughened material on the surface, and leaves a glass-like surface after drying thoroughly in about ten minutes.

With the GJ7770 cotton buff dressed with jeweler's rouge, you can easily smooth off the frosted surface and produce a polished surface. Keep it moving over the surface and don't use too much pressure. If the surface is properly polished, no waxing or other treatment is needed to bring out a brilliant glasslike finish. Jeweler's rouge can be obtained at any hobby or hardware store.

BENDING PLASTICS

Cellulose acetate plastics can be easily bent into any shape, merely by immersing in hot water (from 150° F. up to boiling) for a few moments. Thicker material requires longer immersion. Heat, bend to the desired shape, then chill and "set" by dipping in cold water, or leave to set in a clamp. If clamps are used, make arrangements so that the pressure does not mar the surface—otherwise the clamp impressions will show. In commercial work, felt-lined wooden clamps and forms are used. These plastics may be re-heated and re-bent any number of times.

CEMENTING PLASTICS

Cellulose acetate plastics are usually cemented by use of a solvent—ordinary acetone from the drug store. Paint the two surfaces to be joined with acetone, and hold them together until they set. The joint will be as strong as the original material. Thin sections can be held together with the fingers a few moments until set; heavier sections should be held with padded clamps until the solvent has done its work and evaporated. Surfaces to be joined must be clean, but not necessarily polished—merely make sure of good contact. Household (acetate base) cements may also be used, or you can make up a cement by dissolving some of your carving dust in acetone. Make all joints fit squarely and neatly, as such cement cannot be expected to fill up any open spaces.

OTHER PLASTICS

Another common type of plastic with which good results can be obtained with your power tool is that of the acrylic resins, best known under trade names such as Lucite and Plexiglas. While the various kinds of this type of plastic differ in their characteristics, they all may be easily carved and polished and because of their translucent qualities they make beautiful picture frames and rings. They can be treated with heat, although not so easily as can most of the cellulose acetate plastics, but they cannot be cemented as readily as has been described above.

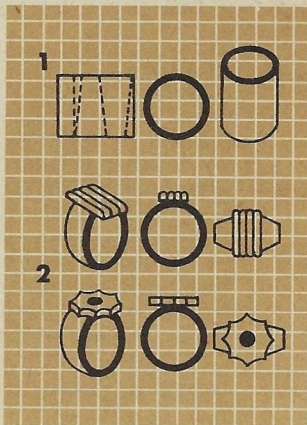
NOTE: The illustrations for the project suggestions described here are over-printed on a graph. If you desire to make the pattern larger or smaller, plot the pattern on a graph of larger or smaller squares. It is a good idea on projects of your own in which your work is from your own freehand drawing or from a tracing to plot your pattern on thin graph paper before proceeding with the actual cutting.

PROJECT NO. 1 — RINGS

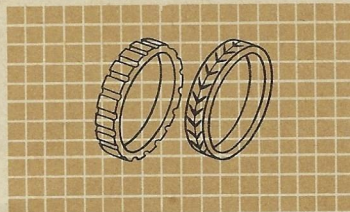
First obtain a $\frac{3}{4}$ " piece of tubular stock (if this is not obtainable, rough out from scrap with a hacksaw a $\frac{3}{4}$ " piece of plastic suitable for a ring). Using either the GJ7764 steel saw or a hacksaw, cut your stock into 3 sections, one $\frac{3}{16}$ " wide and straight and two cut at an angle as shown in the illustration by the dotted lines. If you use square stock scribe a circle the size you want the ring to be, taking an actual ring for a model and cut out center. Then rough off the outside corners.

Round the corners of No. 1 off with fine sandpaper or a light cut with the GJ7763 steel cutter. Sand or cut a small flat space, and cement "the stone" in position. This is cut from the sheet of thick material or other scrap material—even an old tooth brush handle will do. Sand this and the ring perfectly smooth before cementing, then cement. The GJ7802 Sanding Drum is handy for this purpose. After the cement has set, dip the whole in acetone to polish, and give a final lustre with the cotton buffing-wheel which has been dressed with jeweler's rouge.

No. 2, with the wide top portion, will support a much larger "signet." This may be carved in any way desired, a suggestion being the "gallery" shown, which consists merely of a groove and notches around the tapered edge. Cement and polish as before.



PROJECT NO. 2—BRACELETS

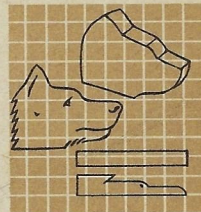


A bracelet-blank like this may be carved into an infinite variety of designs, several of which are suggested. The internal size and width of the blank is optional depending upon the use. More colors may be added by painting alternate sections with acetate-base lacquers of bright colors, or alternate sections may be left unpolished for variety. Pieces of other material may also be cemented on to the bracelet. Another suggestion is to cut grooves, either lengthwise or crosswise with any of the several illustrated steel cutters, and "inlay" these with different-colored lacquers, sanding off the surface afterwards. This bracelet may be made slightly oval-shaped if desired by immersing it in hot water until it softens and then compressing it slightly.

PROJECT NO. 3 — DOG HEAD

Obtain a piece of plastic of 3" x 3" x 1" proportions and, placing a piece of carbon paper beneath your pattern, carbon side down, trace the outline of a dog's head. Rough cut this profile (A) with one of the steel cutters, and then you only need rounding to make a medallion, box ornament, dress pin, etc.

Make rounding cuts on one side, (B) using a steel cutter, figuring the back side of the piece as the center-line. The head is widest at the ears, and more and more material is removed as you work toward the nose. Make a thin cut with the saw to open up the lip along the side, drill one L-shaped hole for one nostril, carve one ear in detail, and set in the eye, either by inserting a piece of black material and a white center, or with lacquer, and leave just enough tool-marks to give the impression of hair. The tip of the nose should be left rough, even slightly "pockmarked" by light touches of one of the pointed accessories to represent the rough muzzle skin.





Any pieces of plastic can be carved into interesting pins and pendants. Fittings may be made by drilling a hole with a Speed Drill in the top and passing a fine chain through, by drilling a small hole and cementing chain in, or by cementing or otherwise attaching the fittings from any ornament of a similar type. Flowers, monograms, animals, school insignia, are some of the things that can be made to original or copied

designs. These may be left in the original color of the material, or colored with lacquers. Screw fittings may be attached by drilling a hole slightly smaller than the screw, forcing the screw to cut its own threads as it goes in. Be careful not to crack the material. "Crystal" effects may be obtained by carving transparent material from the back, leaving the cuts unpolished. For this purpose use one of the small or pointed steel cutters. Beautiful effects are obtained by coloring these cuts with lacquer.

INTERNAL CARVING IN PLASTICS

Internal carving in plastics is relatively new. It gives the hobbyist a really different field to work in and the opportunity to produce many unusually beautiful and decidedly different projects. Interior carving produces the effect of an object such as a flower or miniature figure being embedded in the clear plastic. The effect is greatly enhanced if the carving is colored.

All of the work is done from the back and consists of boring into a piece of plastic with burrs or sharpened drills. By moving the tools from side to side, it is easy to cut a cavity of any desired shape or size. Flowers, leaves, fish, animals, landscapes and abstract designs can be made in this way. When the carving is completed and the cavity cleaned of shavings, it can either be left open or dyed and filled with plaster.

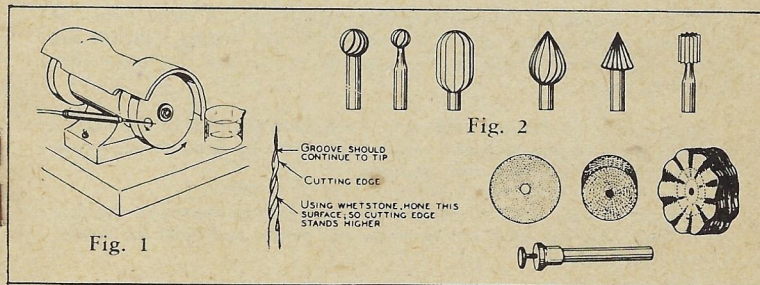
No particular method of holding the Power Tool is called for. What is probably the easiest way, is to hold your Power Tool like a pencil, resting the side of the hand or the last two fingers on the table top to guide and steady the hand. The movement of the Power Tool should be up and down. Sideways movement is produced by moving the piece of plastic on which you are working.

Figure 1 shows how a drill should be sharpened for interior carving, while a few sample burrs and cutters are illustrated in Figure 2. Each of these can be used to produce a desired effect. The long tapered drill, for example, is used to produce a leaf and is used in combination with a cylindrical burr to produce small flowers.

This method is recommended for shaping or sharpening a drill for interior carving: Chuck the drill in the Power Tool and hold it in motion against an ordinary grinding wheel so as to form a long sharp taper. Be careful not to burn the steel, especially the tip. Don't grind out the flutes but let them continue right to the tip. The pointed end should have sharp, chisel-like edges. To test it, try it in a piece of scrap plastic; it should penetrate easily and should not have to be forced and it should cut almost as easily sideways as it does straight ahead. Never force the drill. Your high speed Power Tool does the work. And always be careful not to let the drill break through the top surface since this not only ruins the appearance of your project but also may jam the tool and break the drill off.

When you have completed an interior carving, as stated before, the work may be left "as is" or may be dyed any color you wish. You may dye the carving without filling it or you may fill it with plaster. This method will be described a little later.

Before dyeing, it is important to clean out all shavings from the carving. This may be done by running through the holes a second time with the drill. Shavings left in the hole may either block the dye or cause it to collect and form intense spots of color. An eyedropper or hypodermic needle may be used to fill the holes and keep the color from running from one cavity to another.



If you are making a flower with petals of one color and the center of another, first bore out the center and dye that. Then make the petals, dye them and fill with Plaster of Paris. For a yellow center in a white flower, it is best to make the center first, dye it, and then make the petals. To get the tips of a flower into one color and the petals in another, first fill the cavity with the tip color and then pour it out. Capillary attraction holds the dye at the petal edges and the second color dyes the rest of the petal. To grade a color, use 60-40 acetone and water mixture to fill the first part and then add ordinary dye to fill the rest of the cavity. Pumping the eyedropper will mix the clear and colored parts, producing a gradation. To get a very shiny surface, fill the cavity with solvent cement and pour out immediately so that only the surfaces are "solvent polished." The design can then be dyed and the cavity filled. This effect is very decorative but it destroys the machined texture which adds to the realistic effect of the flower.

After coloring, you may fill the carving with plaster. Plaster of Paris will set in the acetone dye so that it is not necessary to pour out the dye and replace it with water. The dry powder is poured in a heap over the cavities and the object tapped on a padded surface so that the jarring carries the plaster to the bottom of every cavity. As the cavities are thus filled, dry plaster is added and rubbed off to fill the cavities up to the surface. In two or three days, the drying plaster will shrink from the walls of the cavity, leaving a very attractive "pearly" appearance on the carving.

PROJECT NO. 5

FLOWER FORMS FOR INTERNAL CARVING

Before starting an internal carving, polish one or more edges of the clear plastic so you can see how deep you are cutting. Outline the design with pen endbrush and drawing ink, or use wax crayon, scribe or carbon paper.

Be sure never to force your Power Tool. Don't hold it or the plastic loosely; the tool may slip and either injure you or damage the work. Avoid cutting one flower into another.

To form a daisy, drill all directional lines first as shown in the diagram. Next, fan out each cut to shape the petals and drill the center with a ball burr.

The pansy is made in the same way, but with four directional lines, which are fanned out into petals. Your wrist must make the same motion as the tip of the drill so that the end of the fan at "A" is wider than the pivot point "B".

It takes more time to master the rose. Use plastic at least 1/2 inch thick. It is wise to practice the petal pattern in scrap stock first. Then, to start a flower, make a small center, as shown in the side view and gradually increase both radius and depth as you go along. Nine or ten leaves are ample but be sure to keep the flower balanced.

The cone shaped burr is also used to form leaves. Insert it as shown, cut the first half of the leaf, re-insert the burr in the same cavity, and move the back part to form the other half.

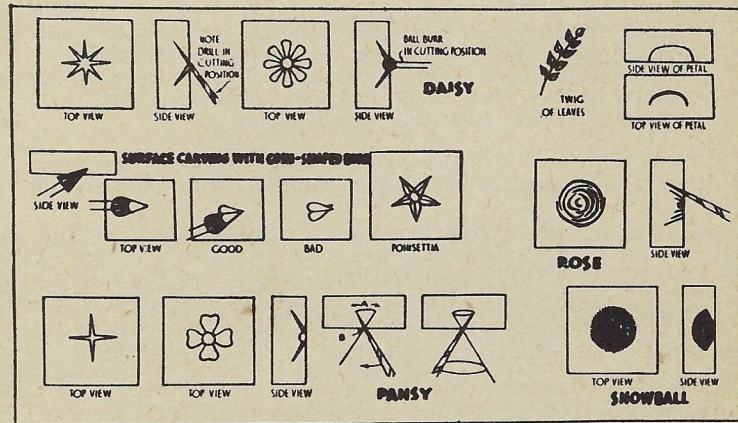


DIAGRAM COURTESY "HOMECRAFT" MAGAZINE

PIN AND EARRING SET INTERNALLY CARVED

Use a transparent plastic such as Plexiglass or Lucite not over one-half inch or under one-quarter inch thick for the pin. The most suitable thickness for earrings is one-quarter inch.

When the stock has been cut to size, bevel the edges at approximately 45°, using the sanding wheel of your Power Tool. Remove all marks and scratches, then buff and polish. Note that in this project the bevels are on the back edges.

The internal carving is done in the usual way with a tapered drill and the flowers and leaves are dyed. If desired the cavity may be filled with plaster of Paris, although this is not essential. The pin back and earring screws, obtainable from any hobby shop, are fastened on with an all-purpose household cement such as Duco.

There are innumerable other projects you can undertake in internal carving. Among these, in addition to costume jewelry, are candle holders, picture frames, plaques, lamps, jewel boxes, letter openers, umbrella handles, book ends, clock cases, desk sets, vases, toilet articles such as hair brush backs, combs and mirrors.

You will soon find that carving internally is as easy as carving externally and you will be amazed at the beautiful results you can obtain.

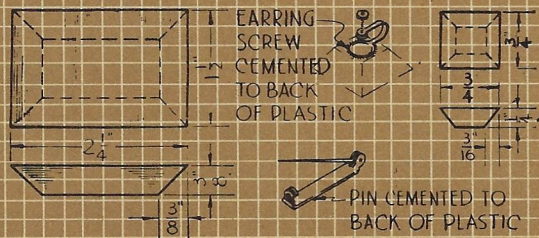


DIAGRAM COURTESY "HOMECRAFT" MAGAZINE

GLASS

HOW TO ETCH GLASS

One of the easiest and most fascinating things you can do with your CASCO Power Tool Kit is to etch your monogram or other designs on your glass ash trays, dishes, cocktail glasses, etc. The process is called "etching" as distinguished from "carving," as it produces an etched or ground-glass surface, instead of deep polished carving. The latter can be done only with slower-turning tools working in water.

Etching with the CASCO Power Tool is as easy as writing with a pencil—you can write your name, draw cartoons or designs, either freehand or by laying the glass over a design and "tracing" it with the tool. Another method is to paste the design on the reverse side of the glass with rubber cement, and follow it with the tool. The etched design can never wear off or become "unfrosted," and when it is washed, it immediately resumes its white frosty appearance upon drying.

The pointed Abrasive Grinding Wheel GJ7707 is the tool to use for this work, and if the work is very fine, then it should be shaped to a perfect point by running on the GJ7775 Dressing Stone. Only very light pressure is required. Heavy pressure not only makes the work more difficult, but wears away the point faster.

The designs may be left frosted in their natural state, or may be colored by wiping colored lacquers over them. The lighter colors are usually more attractive and produce a delicate effect. The lacquer is daubed over the frosted portion, and the surplus is wiped off the glazed portion while wet. When dry, it cannot be removed except by grinding, and is water-proof and soap-proof. Interesting effects may also be secured by wiping aluminum or gilt lacquer into the designs in the same manner, or a combination of colors.

When putting monograms or designs in glass ash trays, it is better to put the design on the bottom or the outside surfaces, as cigarette stains are a little difficult to wash out of the etched glass. In this case, it is of course, necessary to work the lettering in reverse, but this can be done easily by pasting the letter or design on the top surface, so that it will appear in reverse when looked at through the bottom. Ordinary writing paper can be used for this purpose. Hold the glass up to the light as you work.

Many original ideas may be worked out in glass etching such as a Xmas card design on 4" x 5" sheets of glass, wiped with colored lacquer and the edges bound with red cellophane tape. They can be made into pictures suitable for framing, colored and backed with white or colored paper, the design consisting of an original drawing or a drawing copied by laying the glass over the design and "tracing" it with the tool. Black enamel rubbed into the frosted lines produces a striking effect, while lighter effects may be secured by the use of pastel colors in the same way.

Any of the other Mounted Abrasive Wheels can be used to produce other effects such as scalloped or rounded borders or edges, etc. By using your imagination and experimenting you will soon find how simple it is to expand your technique and ability.

PROJECT NO. 7



WOOD

HOW TO CARVE AND POLISH

Woodcarving is the most fascinating art to practice with the CASCO Power Tool because wood cuts faster and more smoothly than any other material. Even the softest-grained woods work with a smooth surface with this tool, because the points travel at such high speed that the grain is not raised, nor does the wood chip or split. The result is a smooth surface that requires very little sanding or finishing before it is ready for the final polish, and even open-grained woods can be given a high polish that would be practically impossible, or at least extremely laborious, if done by hand.

As in working other materials, the **SPEED** of the tool must be utilized to do the cutting, and not its **POWER**—in other words, take a number of light cuts without "forcing" the tool. Material will be removed much faster and your tool-points will last much longer than if the tool is forced. This is particularly true of hard woods, which have a tendency to burn the steel tools if forced too hard.



Saw "V's" for large cuts.



Round corners with steel cutters.



Fine details with speed drills.

Either the GJ7764 or the GJ7861 steel saw should be used in removing large portions, by making a series of parallel V-cuts, lifting out whole chunks of wood. The larger steel cutters are used next to round corners and cut out portions impossible to reach with the saw, and last, the fine detail is put in with the smaller cutters, round or pointed, or with drills. Handle the tool as if it were a pencil or hold it in the palm of your hand without cramping and make repeated passes with light pressure. A great deal of time



Finish with sanding disc.

Apply good rub-in polish.



Achieve gloss with buffer.

can be saved if large sections such as the space between the rear and front legs of the dog design, can be cut out with a hand saw or even a hand fret saw, leaving only the modeling to be done with the CASCO Tool.

The final smoothing cut should be made with the cutters revolving in the direction of the grain, sort of "smoothing it down." Next the GJ-7863 sanding disc or the GJ7801 sanding drums are used, or hand-sanding with a medium and finishing with a fine grade of sandpaper. The secret of a high polish lies in thoroughly preparing the surface

with the tool and sandpaper before attempting to polish.

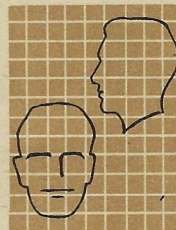
Most miniature wood-carvings look best with a natural finish, with no waxes, shellac, or other foreign material interfering with the natural color and feel of the wood. This applies even to the open grained woods, if they are properly polished. Certainly no coating should be applied that cannot be polished *into* the wood, so that it will not show on the surface. Materials of this type include paste wood fillers, oil or acid stains (NOT varnish stains), wax, and thin shellac. The latter is rather difficult to handle without considerable experience, as it must be polished completely *into* the wood, with the GJ7770 Cloth Buffing Wheel generating considerable heat, but without burning. Wax is probably the easiest finish to start with since it is absorbed so quickly. Wood-filler followed by wax is also a good combination, but the wax must always be polished completely off or it will show finger marks and collect dust. Another good combination is the type of polishing fluid, paste or cake, which contains both a wax and a fine abrasive as this smooths and polishes simultaneously.

Extremely high polishes can only be secured with close grained hardwoods, or by filling the pores of open-grained woods with paste fillers. The final polishing in all cases should be done with a clean cloth buffing wheel operating at high speed.

Interesting variations can be produced by using the GJ7774 Mounted Scratch Brush, which cuts out the softer wood between the grain-streaks, which are left standing higher. If done properly, the entire surface will then take on a high polish.

PROJECT NO. 8

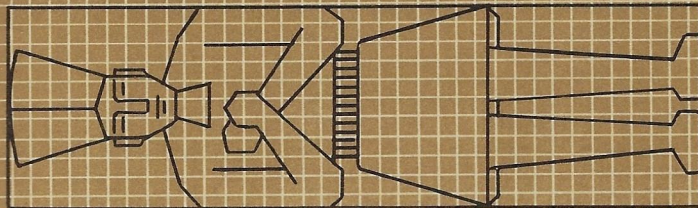
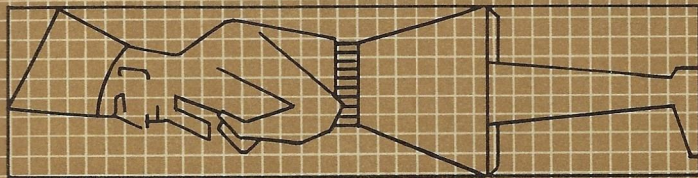
"TWO-PROFILE" METHOD OF WOOD-CARVING



Using this method, anyone can produce very creditable carving without much experience. If you can get two pictures of anything at right angles, giving a side and front view, as shown for the Penguin and the Egyptian, you can carve anything. Merely cut to the two profiles, and round off and add detail (see Project No. 10 under Wood for general directions). For simple things like fish, you need only one profile, and there are hundreds of these available, in catalogs, magazines, dictionaries, encyclopedias, etc. You can increase or decrease the size of the object by making your original layout on graph paper and developing the size desired.

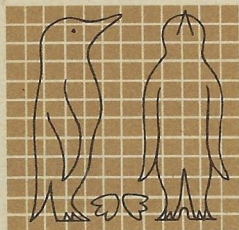
PROJECT NO. 9 — EGYPTIAN

27



This figure looks very intricate and difficult, but it isn't, and besides its style will cover up any inaccuracies. This piece is cut from 1" x 4" square block by the two-profile system outlined above. The whole can be dyed a dark mahogany, or the head-dress, necklace, and belt can be colored with a bright enamel. Don't attempt to do any detailed sculpture on the face—the more "primitive" it looks, the better and the easier. For the initial routing, use the larger steel cutters, finishing the details with the smaller ones.

PROJECT NO. 10 — PENGUIN



Use 1" x 1" x 3" soft wood, you can vary this depending on the finished size penguin you desire. A good idea is to have a picture of a penguin handy.

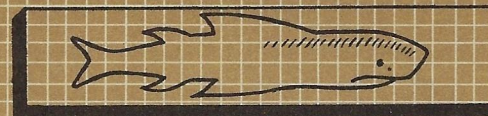
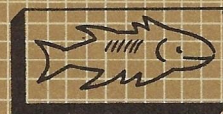
First, sketch the profile on one side with a pencil. Now, with your GJ7763, Oblong Steel Cutter, follow this outline and remove all excess wood clear through to the opposite side. Be careful not to break the beak—make it oversize and finish it down to size later.

Now, working from both sides to front and back, round off the head, point up the beak, shape the body, wings, and toes. The wings should protrude slightly away from the body midway between the front and back. To finish the back, proceed to shape the back while working on the tail. The tail should be flared out at the bottom. Leave plenty of stock to start. Remember—you can always take off, but you can't put it back.

To make the toes and undercut the wing-tips and tail, use the GJ7764 Mounted Saw. For the eyes, use the GJ7761 Ball Cutter or one of the Speed Drills or any of the other steel cutters with a small end.

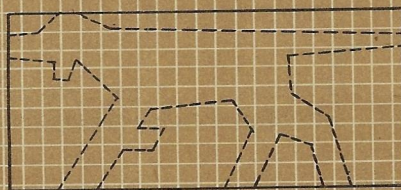
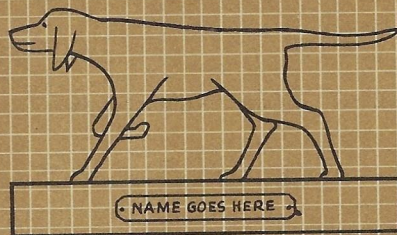
Using a #2/0 sandpaper, smooth and finish all over. To polish, use several coats of furniture wax or tan shoe polish, rubbing each coat well into the wood.

If desired, the regular penguin colors of black and white may be put on with quick-drying (acetate base) lacquer. Paint a white vest, black eyes and "tails," black feet and black crest and wings.



PROJECT NO. 11 — MOUNTED FISH

Miniature carved mounted fish are very easily made and are very attractive and look like highly skilled carving. Trace the outline of any fish on a piece of wood and cut out the outline. Then laying the piece on a solid block of wood, work from a center line running lengthwise down in all directions, thinning out toward the edges. The fins and tail will be paper-thin at the edges, and only a tool turning as fast as the CASCO Power Tool would be trusted not to tear up the wood on such work. Do not attempt to polish it at this stage. Smooth off the balance of the block, bevel the edges, paint it black or stain mahogany and polish, leaving a small unpolished portion in the center to glue the fish to. Details can be put on the fish with a small rounded or pointed cutter depending on the effect desired, or it may be finished smooth. Then, polish the fish with wax after it is glued on, and put in the eye (a 1/8" dot of black enamel, let dry, then a small dot of white enamel in the center). A little piece of metal may be made into a name-plate if desired, engraved, and attached.



PROJECT NO. 12 — HUNTING DOG

For this piece you will require a block of wood $\frac{3}{4}$ " x $2\frac{1}{2}$ " x $5\frac{1}{2}$ ". Trace the profile and cut out. You can save much time and labor by doing the rough blanking out with a hand-saw or even a hand fret-saw unless you are using a very soft wood such as white pine. Then using one of the larger steel cutters, cut exactly to the profile line and mark this in pencil all around the block in the center of its thickness. Then as long as you never lose this line, you can't get "lost." Work from this line, rounding off in all directions, preserving the greatest thickness at the shoulders and hips, and for the legs. Leave the tail a little thick until you are nearly done, for strength. Open up between the legs with the saw, and also make a saw-cut half-way up under the ears, separating them from the head. When finished and polished mount on a block of beveled and polished wood, with glue. Careful use of the wire scratch brush will leave just enough roughness to suggest hair along the top of the head and the back. A metal name-plate engraved with the pointed abrasive wheel may be added if desired.

Any of these interesting designs can be made easily and quickly with your CASCO Power Tool. Hard woods such as mahogany, walnut or maple are best to use as they can be finished to a high polished surface. Wood $\frac{1}{4}$ " thick is a good size to work with and you can vary this as you desire.

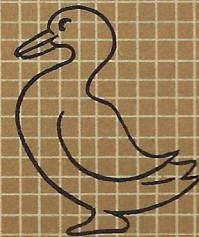
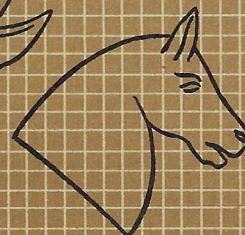
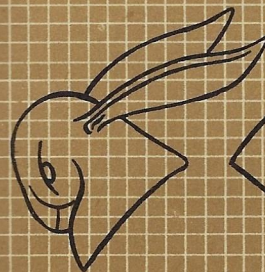
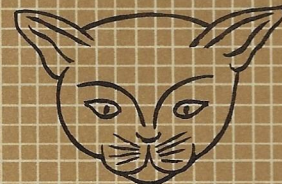
The designs given can be enlarged by tracing on graph paper with larger squares. By referring to the sketches you will understand how to carve the contours.

After you make the design on paper, trace it on wood and cut the outline with a coping or jig saw. Using a steel cutter like the GJ7795 and GJ7763, carve the details outlining the mouth and eyes. The contours are shaped by gentle sloping as the sketches illustrate.

Holes for the eyes are to be made with one of the Speed Drills like GJ7758 or the small ball cutter, GJ7761.

The finish can be left rough or sanded with fine sand paper and finished with wax, varnish or shellac. Use the GJ7770 Cloth Buffing to work up a high lustre with the wax.

Painting with colored lacquer produces attractive ornaments. To further enhance the appearance, "stones" from discarded costume jewelry can be cemented to represent eyes. Clasps can be purchased or removed from other dress pins and cemented to the back surface which should be left free of any finish.



METAL

HOW TO
WORK IT

It is recommended that the beginner commence to work with a thin piece of sheet metal and initially confine his efforts to profile work of a simple nature until he gets used to working in metal. Soft metals such as brass, copper and aluminum can be cut with any of the steel tools because of the high speed of this machine. For any great amount of work, particularly on hard metal, it would pay to obtain special high-speed or alloy drills and tool points.

Always hold thin sheet metal firmly when working on it with the power tool, and have the work backed up with a solid smooth surface in order to make a clean cut. In drilling holes in any but the thinnest material, back the tool in and out every few seconds to clear the hole of chips. When a steel tool-point changes color from overheating, its edge is ruined as far as further metal-work is concerned, therefore work carefully.

All of the Abrasive Grinding Wheels and Steel Cutters can be used with soft metals. On harder metals, only the Abrasive Grinding Wheels and polishing tools should be used. Abrasive Wheels which become clogged or glazed or chipped may be cleaned and reshaped by running them against the GJ7775 Dressing Stone furnished with the kit.

Interesting "Damascened" or "engine-turned" effects can be produced on metal, either with the end of any of the abrasive wheels, or with the GJ7773 Porte-brush running in paste abrasive such as valve-grinding compound. The GJ7774 mounted wire scratch brush may also be used to produce "brushed" finishes.

Metals can be polished with the GJ7766 rubber-bonded abrasive wheel, followed by use of a polishing compound on the cotton buffing wheel. The felt wheel is also used with polishing compound for the same purpose on materials where the heat is quickly conducted away, such as on brass or copper alloys.

Many styles of bracelets can be made from aluminum, brass, or copper tubing and sheets. A few suggested styles are shown which can be drilled, carved and engraved. Metal having a thickness of $1/8"$ to $3/16"$ is a good size to use. The diameter of the tubing is dependent upon the size of the wrist.

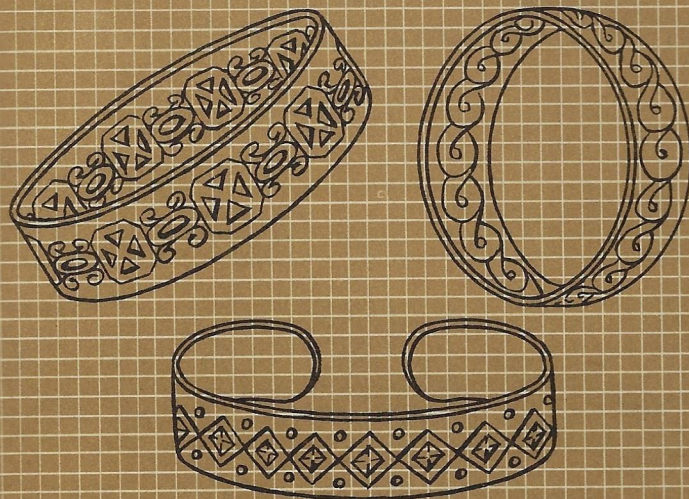
Use a piece of heavy paper to make a pattern to fit the wrist. Lay out the pattern with a scribe or other sharp pointed instrument. Sheet stock can be cut with tin snips; the tubing with a hack saw. The rough edges are to be ground with a barrel shaped abrasive wheel like the GJ7705.

For flat strips, the design is engraved or etched with a pointed steel cutter or abrasive wheel and formed to the shape of the wrist. It is a good idea to practice your design on a scrap piece of metal.

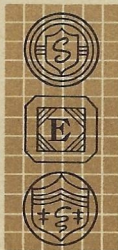
Tubing can be worked as is and then bent into an oval shape to comfortably fit the wrist.

Any variety or combination of designs can be placed on the metal. Colored lacquer can be painted or dripped in the grooved designs. A high lustre is produced by using the GJ7766 rubber bonded polishing wheel or dull finish by the steel wire brush. To preserve the finish, apply one or two coats of clear lacquer.

The same instructions can be varied to make useful napkin rings personalized with your name or monogram.



PROJECT NO. 15—METAL COAT OF ARMS



This is a simple novelty to make, using a thin piece of brass, copper or aluminum. Size can be varied to suit your needs.

The shape can be first cut with metal shears and grind the rough edges with one of the "barrel-type" mounted abrasive wheels.

Varied designs can be applied with the GJ7707 abrasive wheel or with a pointed steel cutter. This can be done free-hand or by first scribing or sketching. The surface can be either left dull, brushed or polished (see general instructions above).

The appearance of this coat-of-arms is greatly enhanced by mounting on a piece of painted or stained wood which is cut to the same shape or shaped in contrast. Allow a border of the wood to extend beyond the edges of the metal.

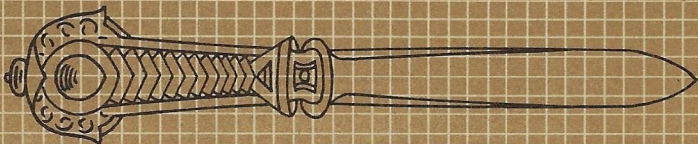
The metal can be attached to the wood by cement or by nailing or screwing. Nails or screws of the same material as the coat-of-arms can be bought at any hardware store.

Interesting effects can be produced by applying a light coat of quick-drying lacquer and immediately wiping off the excess. This will leave lacquer in the engraved places for contrast.

PROJECT NO. 16—LETTER OPENER

This is another easy, useful project you can make with your CASCO Power Tool Kit.

Select a piece of thin brass, 8 inches long by 1 inch wide and with a sharp pointed instrument or nail sketch the design shown. This



can be varied as you desire. Cut the rough outline with a heavy scissors or metal shears. Allow approximately 4 inches for the handle and also for the blade.

With a steel cutter, trim any rough edges and shape the letter opener. Replace the cutter with a mounted abrasive wheel, and grind your initials, a monogram or any design you wish on the handle. The GJ7707 abrasive wheel works well for this purpose.

To finish the blade, use one of the barrel shaped mounted abrasive wheels. Taper the cutting edges from the middle of the blade outward making the edges thinner than the center. If the metal is soft, the wheel may load-up . . . to remove, use the GJ7775 Dressing Stone. Polishing Wheel. To preserve finish apply one or two coats of clear lacquer.

The same general procedure outlined in the above two projects can be applied to create a wide variety of interesting metal projects. As you increase your skill, you can use your CASCO Power Tool to design plain metal flower pots and vases, make bracelets, rings and many other things.

ORDERING ACCESSORIES

Try your dealer first when you want more accessories. If he does not have in stock what you need, fill out and send the attached order blank with your remittance to the factory.

The cost of handling each order (pricing, entering, filling, shipping, billing, mailing, bookkeeping, etc.) makes it necessary that you order a minimum of \$1.00's worth of tools with each individual order. In this way we can avoid increasing the cost of the accessories. Orders will be shipped postage prepaid.

Do more jobs by adding accessories to your kit.

Each of these selected accessories are precision made under the most modern methods of controlled production and inspection. This assures you of receiving maximum service when properly used.

The value and usefulness of your CASCO Power Tool is naturally increased by the number of different accessories we offer. It pays to have a complete set to handle all jobs on wood, metal, glass, or plastic.

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